PRIZMA®

Automated Swimming Pool Monitor and Controller

User Manual US

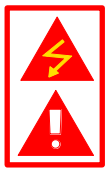
Version 2.18

Table of Contents

1. General Safety Precautions 4
2. General Overview 5
3. Safety Information 6
   3.1. Intended Use 6
   3.2. Safety Precautions 6
4. Installation 7
   4.1. Working Environment 7
   4.2. Required Components 7
   4.3. Basic Installation 8
   4.4. Plumbing Installation 8
      4.4.1. PRIZMA® Controller 8
   4.5. Cl and pH Connection to External Dosing Pumps 9
   4.6. Electrical Installation 9
      4.6.1. Connecting Relays (external dosing systems) 10
      4.6.2. pH (+) and pH (-) setting 12
      4.6.3. Connecting External Communication 12
      4.6.4. Connecting the Empty Tank Alarms 13
      4.6.5. Connecting External Flow Switch 13
   4.7. Completing the Installation 13
5. Controller Settings and Software Set-up 14
   5.1. PRIZMA® Setup (Via Panel interface) 14
   5.2. Connecting the TDU (Technical Device Unit) 14
   5.3. General Manu Navigation 15
   5.4. Main Menu 1: Chlorine Settings 16
   5.5. Main Menu 2: pH Settings 16
      5.5.1. Cl and pH Feed Rates 16
   5.6. Main Menu 3: Calibration and Pool Volume 17
      5.6.1. Calibrating Cl and pH 17
      5.6.2. Setting Pool Volume 18
   5.7. Main Menu 4: Pump Operation and Test Now 18
      5.7.1. Testing Cl and pH Feed System 18
      5.7.2. Test Now 18
   5.8. Menu 5: Additional Pool Information 18
   5.9. Menu 6: 20
   5.10. Technical Menu 20
   5.11. Technical Menu 1 and Technical Menu 2 20
   5.12. Tech Menu 3: TDU Settings 21
   5.13. Tech Menu 4: Remote Settings Continued and Testing 21
   5.14. Tech Menu 5: Display Mode Selection 21
6. Controller Settings and Software Set-up Using iPRIZMA® Smartphone App 22
   6.1. WiFi set-up 23
   6.2. Downloading the iPRIZMA® smartphone app 23
   6.3. First time connection to PRIZMA® using iPRIZMA® 23
   6.4. Using iPRIZMA® user manual 23
7. Normal Operation 23
8. Emergency Mode 24
9. Test Counter 24
10. SPA Mode 25
11. Alarms and Troubleshooting 26
12. Maintenance 26
   12.1. Replacing the Test-strip Cassette 26
   12.2. Filter Maintenance 27

12.3. Prizma® Maintenance Kit 27
12.3.1. Parts Included 28
12.3.2. Removing the Prizma® Cover 28
12.3.3. Replacing Flow Switch 29
12.3.4. Replacing Pump Housing 30
12.3.5. Replacing the Prizma® Cover 33
Appendix A - PRIZMA® Specifications 34
Appendix B – PRIZMA® Blow-Apart Diagram 35

1.General Safety Precautions



This section presents important information intended to ensure safe and effective use of this product.
Read the following carefully before handling the product. These warnings and cautions must be followed carefully to avoid injury to yourself or damage to equipment.

Warning: Only properly trained and licensed electricians should attempt to wire or service the electronic components of the PRIZMA® Controller.	Attention! Seuls des électriciens qualifiés ayant reçu la formation adéquate peuvent entreprendre le branchement, l'entretien ou la réparation des composants électroniques du contrôleur PRIZMA®.
There is an Electrical Shock Hazard when servicing this system.	Il existe un risque de choc électrique lors de l'entretien de ce système.
Always verify that all electrical power source(s) are off before opening the analyzer/controller unit or attempting to service electronic components or wiring.	Ayez soin de toujours vérifier que la ou les source(s) d'alimentation électrique est ou sont bien déconnectée(s) avant d'ouvrir l'unité ou d'entreprendre toute opération de service technique et tout branchement des composants électroniques.
Caution: Extreme caution should be used when installing, operating, and maintaining the PRIZMA® Controller. Only properly trained technicians are authorized to install and maintain the controller.	Attention! Il y a lieu d'agir avec une extrême prudence lors de l'installation, de la mise en œuvre et de la maintenance du contrôleur PRIZMA®. Seuls des techniciens dûment formés à cet effet sont autorisés à effectuer l'installation et la maintenance du contrôleur.
Only properly trained and licensed swimming pool operators should attempt to make any changes to chemical dosing levels.	Seuls des opérateurs qualifiés de piscine dûment formés à cet effet sont habilités à modifier les dosages des produits chimiques utilisés.
Always follow local health and safety regulations when performing any service on the analyzer/controller unit or when changing chemical dosing settings.	Conformez-vous sans exception aux consignes locales de santé et de sécurité lorsque vous effectuez toute opération technique sur l'analyseur/le contrôleur, ou lorsque vous modifiez les paramètres de dosages chimiques.
Caution: The PRIZMA® is shipped as 110-120V AC. Confirm the required voltage before making any electrical connections.	Attention! Lors de sa livraison, le PRIZMA® est paramétré pour un branchement électrique à 110-120V AC. Assurez-vous de la tension électrique applicable avant d'effectuer un quelconque branchement électrique.
Each relay connection is limited to 4 amps, to prevent overheating. The relays may show a higher rating but do not connect equipment exceeding 4 amps.	Chaque connexion relais est limitée à 4 Amp. afin d'éviter toute surchauffe. Même si les relais affichent éventuellement une valeur supérieure, ils ne se connecteront pas à un élément dépassant 4 Amp.
All electrical connections should comply with National Electrical Code (NEC) and all local regulations.	Tous les branchements électriques doivent être conformes au Code Electrique National (NEC – *National Electrical Code*) ainsi qu'à toutes les consignes locales.
Caution: PRIZMA's control board unit should not be opened except for initial installation and troubleshooting, and should only be opened by a trained and approved technician.	Attention! Le tableau de commandes du contrôleur PRIZMA® ne doit en aucun cas être ouvert si ce n'est lors de l'installation initiale et en cas de dépannage – auquel cas son ouverture ne doit être effectuée que par un technicien ayant reçu la formation adéquate et dûment habilité.

2.General Overview

The PRIZMA® automatic swimming pool controller performs tests for chlorine and pH. The test results are displayed in a scale of low, normal or high on the front panel. The PRIZMA® automatically controls chlorine and pH dosing in order to optimize the pool's chemicals and to maintain personal and environmental safety.

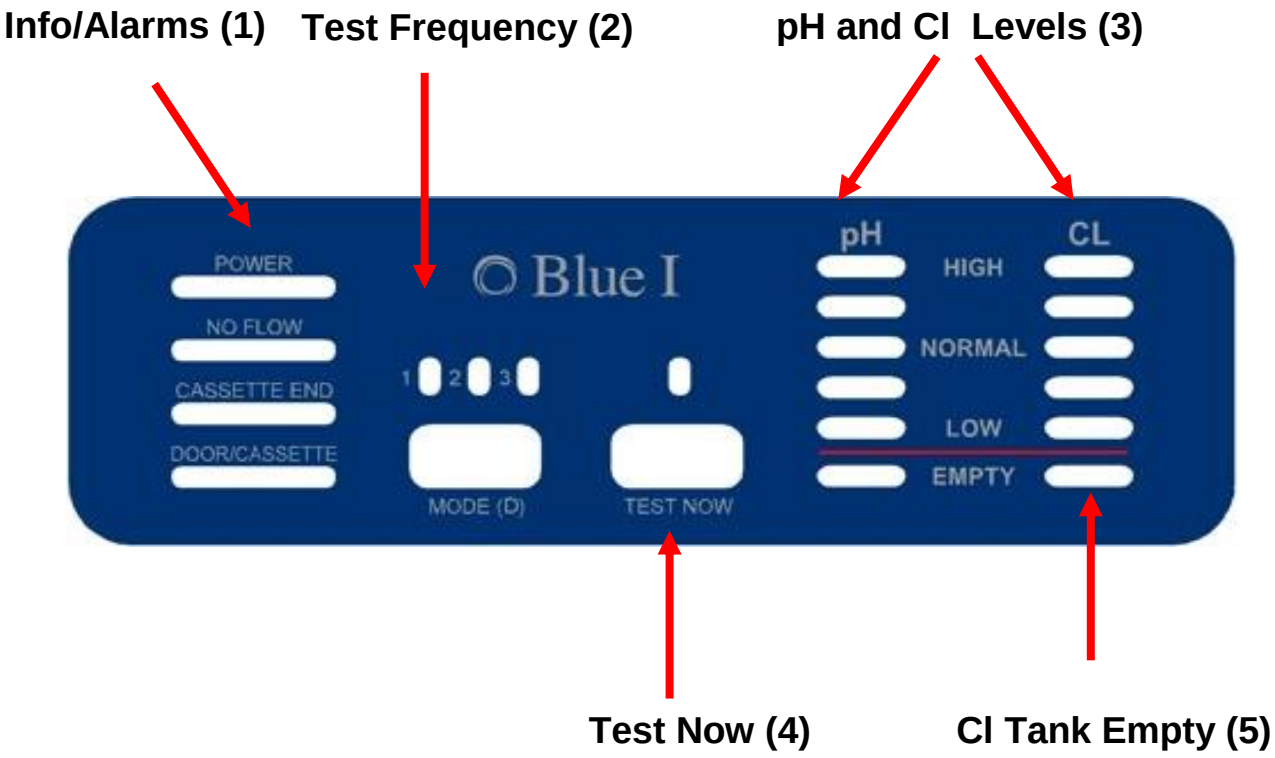


Figure.1 User Interface Panel

3. Safety Information

3.1. Intended Use

This manual is for qualified and trained pool service technicians who will install and service the PRIZMA® Controller. It provides instructions on how to install the controller, how to integrate it with external pool chemical dosing systems, as well as how to calibrate, operate, and maintain the system. Included in this document is some general information on how pool water quality is monitored and maintained, but it does not teach how to operate swimming pools or administer chemicals.

3.2. Safety Precautions

Warning: Only properly trained and licensed electricians should attempt to wire or service the electronic components of the controller. There is an Electrical Shock Hazard when servicing this system. Always verify that all electrical power source(s) are off before opening the controller unit or attempting to service electronic components or wiring.

Caution: Extreme caution should be used when installing, operating, and maintaining the PRIZMA® Controller. Only properly trained technicians are authorized to install and maintain the controller. Only properly trained and licensed electricians should attempt any change to the system's electrical components. Only properly trained and licensed swimming pool operators should attempt to make any changes to chemical dosing levels.

Always follow local health and safety regulations when performing any service on the controller or changing chemical dosing settings.

Note: The protection provided by the equipment may be impaired if the product is used in a manner not specified in this manual.

Note: Blue I Water Technologies Ltd. does not accept any responsibility for any damage caused to its products by unauthorized personnel.

USE OF NON-BLUE I WATER TECHNOLOGIES' REPLACEMENT PARTS WILL VOID ALL WARRANTIES.

Note: PRIZMA® mains power plug is a disconnected device. Mains power connection should be accessed easily:

- Connect to an appropriate power inlet with comfortable access
- Connect to a connection box with appropriate circuit breaker
- Only a safety-certified plug shall be connected to the cord during the unit installation according to national standard

Note: Mains power fuse rating:

Replace a fuse with the same type and rating.

Supplied Voltage	Fuse Type	Manufacture Name	Manufacture P/N
120VAC	0.25 slow blow	"Littelfuse"	218.250XP
230VAC	0.15 slow blow	"Littelfuse"	218.125XP

Note: PRIZMA® meets installation category II – Overvoltage categories

Note: Damaged power cord should not be used and must be replaced by manufacture or its service agent in order to avoid hazard

Note: PRIZMA® is intended for pollution degree 2

4.Installation

For an easier view of the PRIZMA® display, it is recommended to install under a sunshade.

WARNING

The chlorine and pH dosing systems should be installed AFTER the pool equipment (heater etc.)

WARNING

Chlorine injection into water pipe must be 50cm (20Inch) apart from acid or base injection into water pipe.

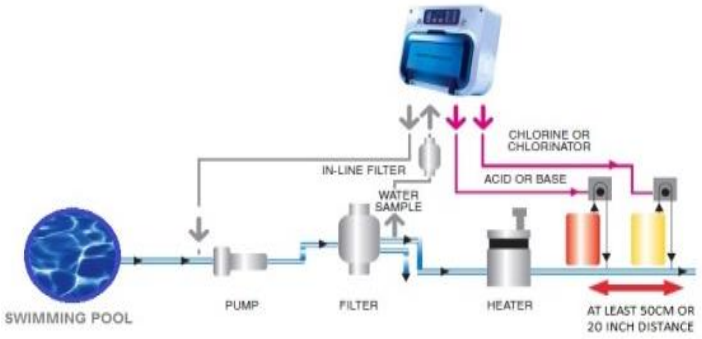


Figure.2 Installation Schematics

4.1. Working Environment

Pollution Degree: 2

Installation Category: 2

Altitude: 2,000 m

Humidity: 1 to 90% non-condensing

Electrical Supply: 100-115Vac, 1.0A or 200-230Vac, 0.5A, 50/60Hz

Temperature: 5°C to 45°C*

4.2. Required Components

Supplied with the Controller:

- PRIZMA® wall mount adapter
- Test strip cassette
- Tubing to and from PRIZMA®, 10m (33 feet) of 6mm (1/4”) O.D with 4 plumbing fittings
- Power cord, 1.8m (5.9 feet) cord provided with plug
- pH and Cl dosing pumps power cords with socket , 15 cm (5.9”)
- Dosing pump socket enclosure safety lock

If software setup is not being performed with the iPrizma app and Wi-Fi connection, a TDU (Technical Device Unit) is required to perform software set-up changes and is usually kept by the technician.

NOTE

A single TDU can be used to program multiple PRIZMA® controllers.

*For optimal measurement accuracy, water temperature should be between 15°C and 38°C (59°F–100.4°F).

Every pool is slightly different so be aware of the pool's plumbing configuration and sizes before installing. The installer will need to supply all additional components to complete the installation. Make sure that you have all required parts on-site, including:

- Installation materials for attaching PRIZMA® to the wall or to other mounting surface
- Plumbing Fittings and Tubing required to supply water to and from the controller (6mm (1/4") O.D)
- Plumbing Fittings and Tubing required to inject chemicals to the water (6mm (1/4") O.D)
- Electrical cord to supply power to the controller
- Electrical cords to connect controller to dosing systems

4.3. Basic Installation

1. Mount the PRIZMA®'s wall mount adapter on a stable wall or surface, preferable at eye level

2. Connect the PRIZMA® to the wall mount adapter, making sure the adapter rails are securely inserted in the PRIZMA®

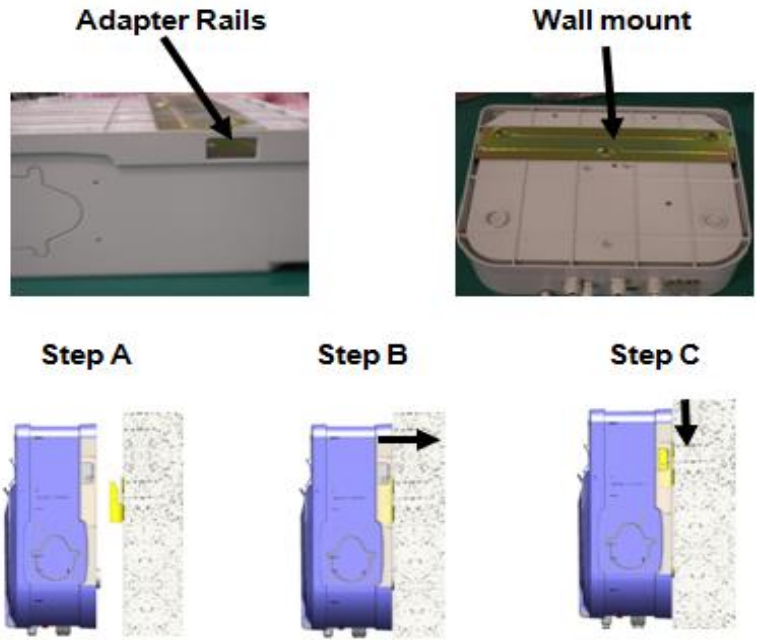


Figure.3 Well Mount Installation

4.4. Plumbing Installation

4.4.1. PRIZMA® Controller

NOTE

PRIZMA® should be installed after a water filter of at least 130micron

1. Connect the water inlet tube to the pool's circulation system after the filter and before the chemical dosing systems.

NOTE

If the pressure is greater than 15 psi (1 bar) a pressure reducer will be required.

2. Connect the water outlet tube to the pool's circulation system on the suction side of the pump.

NOTE

A 4 psi (0.25 bar) pressure difference is required between the PRIZMA®'s inlet and outlet.

3. Optional: connect a drain line to the sampling drain port

4.5. Cl and pH Connection to External Dosing Pumps

This section applies to Cl and pH connection to dosing pumps. For the dosing pumps infromation, refer to the manufacturers' instructionsfor proper installation.

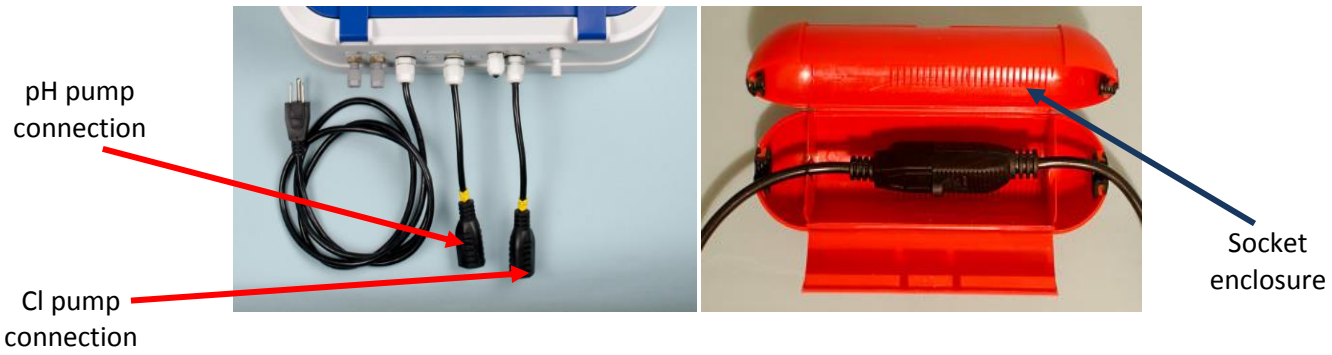


Figure.4 Dosing Pumps Cables & Socket Enclosure

1. Connect the Cl connector to Cl Dosing Pump and protect the connection using the extension cord safety lock.

2. Connect the pH connector to pH Dosing Pump and protect the connection using the extension cord safety lock.

NOTE

The dosing pump socket enclosure safety lock MUST be installed in a vertical position as shown in the picture, to ensure the connection is protected from ingress.

4.6. Electrical Installation

CAUTION

The PRIZMA® is shipped as 110-120V AC. Confirm the required voltage before making any electrical connections.

CAUTION

Before opening the cover, make sure ALL electrical sources to the PRIZMA® are OFF.

NOTE

The maximum voltage for PH Ext. and CL Ext. inputs shall not exceed 250VAC and 4A MAX. Wiring connection shall be 17AWG MIN, Rated voltage: 100-250VAC, Minimum rated current: 10A, Flammability rating: F1

NOTE

EXT. FLOW SW, PH Tank Empty, CL Tank Empty inputs shall be limited to 16V r.m.s and 22.6V peak and 35VDC

The PRIZMA® must remain connected to its power supply continuously (24/7) to ensure proper operation of timed water tests.

4.6.1. Connecting Relays (external dosing systems)

No additional wiring is required for the PRIZMA® Integrated Cl and/or pH pumps. This section is for external chlorine and/or pH dosing systems.

The relays controlling the dosing systems are dry contacts and do not have power. They operate as a switch for the power and only the line (live) wire of the power supply should be connected to the Cl ext. or pH ext. terminal blocks.

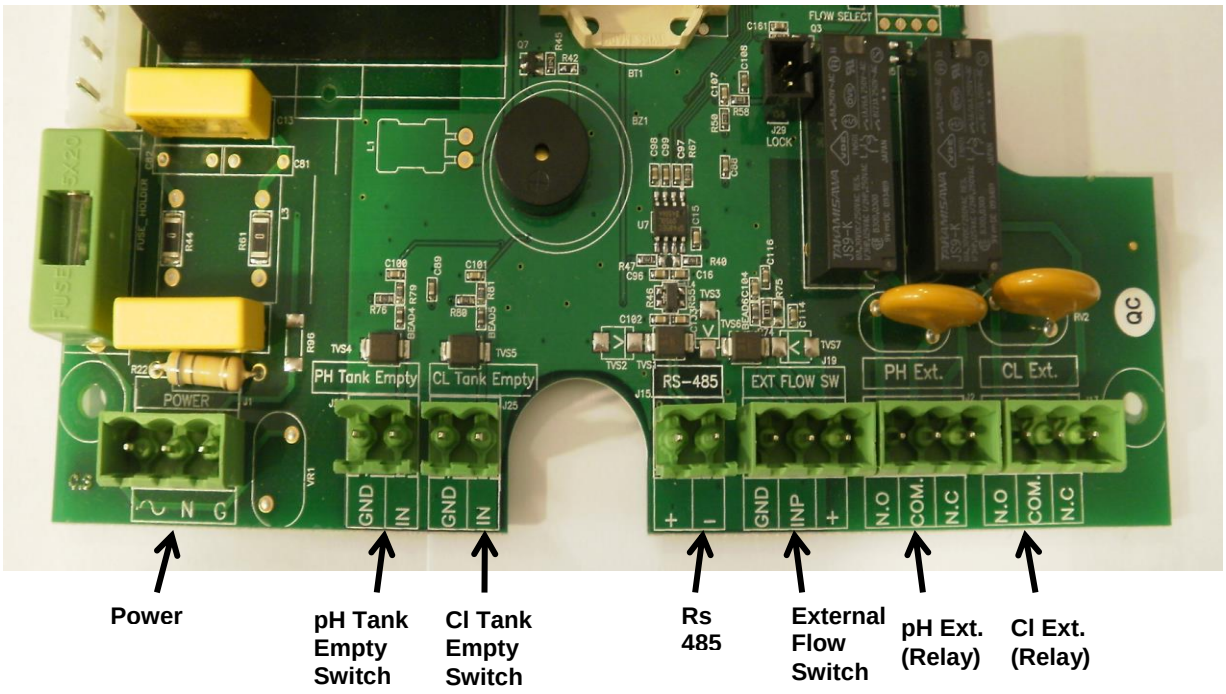


Figure.7 Main Card

1. Connect the earth wire to the ground return wire from each of the controlled dosing systems.
2. Connect the neutral wire to the return wire from each of the controlled dosing systems.
3. Connect the line (live) wire to the connector marked Com of each relay.
4. Connect the line wire from the dosing system to the connector marked N.O. or N.C. as appropriate of each relay.

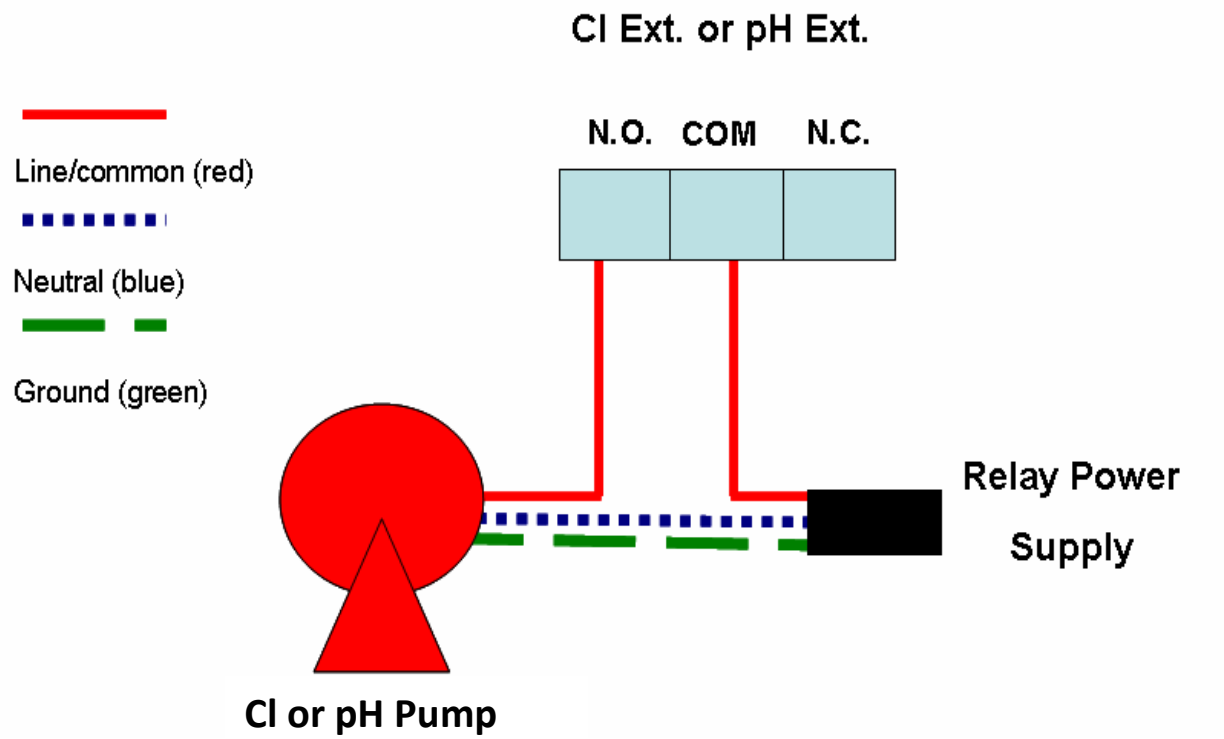
a. N.O. = Normally Open means that the Cl or pH feeder will only receive power when the PRIZMA® calls for Cl or pH feed.

b. N.C. = Normally Closed means that the Cl or pH feeder will always receive power except when the PRIZMA® calls for Cl or pH feed.

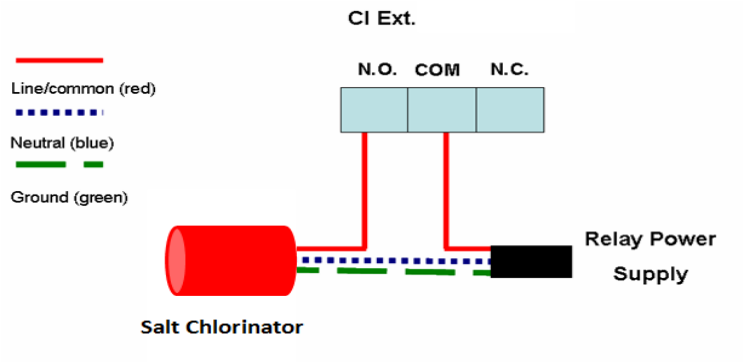
Example Relay Wiring

This section is for general information only and is not intended to fit every possible dosing system. If you are unsure of the proper wiring configuration, consult the dosing system manufacture for specific electrical requirements.

1. Dosing Pump or Solenoid Valve
   i. Dosing will turn ON based on PRIZMA® decision to add chemicals
   ii. Connect the Line (live) wire through *COM* and *N.O*.

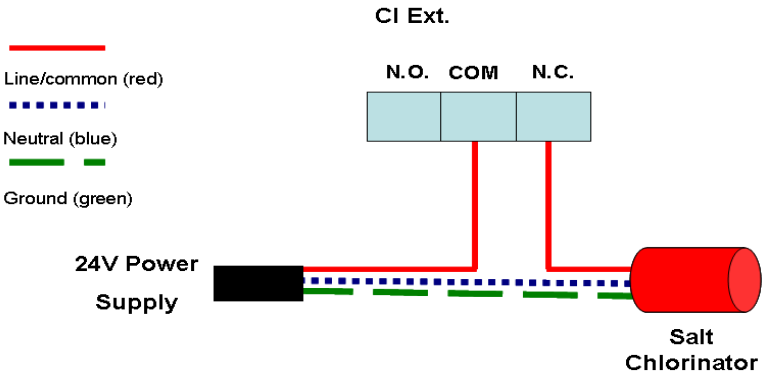


2. Salt Chlorinator
   a. Dosing will turn ON based on PRIZMA® decision to add chemicals
   b. Connect the Line (live) wire through *COM* and *N.O*.



3. Salt Chlorinator (dry contact or 24V)

a. Dosing will turn ON based on PRIZMA® decision to add chemicals
b. Connect 24V wire between *COM* and *N.C.*
c. The Chlorinator will receive 24V all the time. ("OFF" dousing time)
d. The voltage will disconnect from salt generation ("ON" dosing time) based on PRIZMA® decision to add chemicals



CAUTION
• Each relay connection is limited to 4 Amps, to prevent overheating
• Make sure that voltage to the dosing system is correct before connecting power supply
• PRIZMA®'s cover should not be opened except for initial installation and troubleshooting

4.6.2. pH (+) and pH (-) setting

PRIZMA® default setting coming with pH (-) control (Acid). The controller is adding acid to balance the pool until reaching the set point.

pH (+) control can be set by switching the position of the lock (see photo below) on the bottom part of the PRIZMA®. In that case, the controller will add base until reaching the set point. The keys are supplied with the controller.

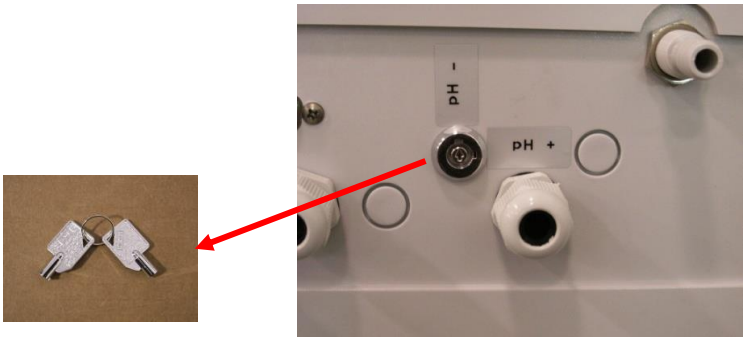


Figure.8 Acid or Base Key & Switch

4.6.3. Connecting External Communication

The RS-485 connection is used for external communication including the optional WaterGuardOL Wireless Communicator (Modem). See WaterGuardOL manual for communicator details.

1. Connect the '+' on the PRIZMA® RS485 terminal block to the '+' of the communicator RS485 terminal block

2. Connect the '-' on the PRIZMA® RS485 terminal block to the '-' of the communicator RS485 terminal block

4.6.4. Connecting the Empty Tank Alarms

These connections allow for sensors in the chlorine and pH feed systems to display alarms when the chlorine and pH run out. The sensors are not supplied with the controller.

Sensor must supply dry contact (ON/OFF) signal to be recognized by PRIZMA®.

Follow tank sensor manufacture directions for installation and confirmation of wiring

Connect the two wires from the tank sensor to the Ground and IN of the Cl or pH empty terminal block.

4.6.5. Connecting External Flow Switch

The external flow switch provides another layer of safety against accidental chemical dosing in the case of no flow in the pool's circulation system where chemicals are being added (i.e. during backwash). PRIZMA® supports both 2 and 3 wire flow switches.

Follow flow switch manufacturer directions for installation and confirmation of wiring.

Place a jumper (short) connection J21 Flow Control, located on top right of main electronics card.

- When a 2 wire switch is used, it should be connected to the "INP" and "GND" connections on PRIZMA®.
- When a 3 wire switch is used, the "VCC" connection will also be used. After connection check for proper operation and change wire order if not working.

4.7. Completing the Installation

1. If the PRIZMA® was opened for inner connections return the cover making sure that all screw are securely in place; do not over tighten (Figure 5)
2. Install a new cassette, close the door and lower tabs to hold door in place (Figure 8)

Figure.9 Replacing the test strip cassette

3. Connect the supplied power cord to the appropriate electrical power socket.

CAUTION
Connect to the power after completion of all installation activities

15 min after powering the PRIZMA® cassette will load automatically, start to test and control the pool.

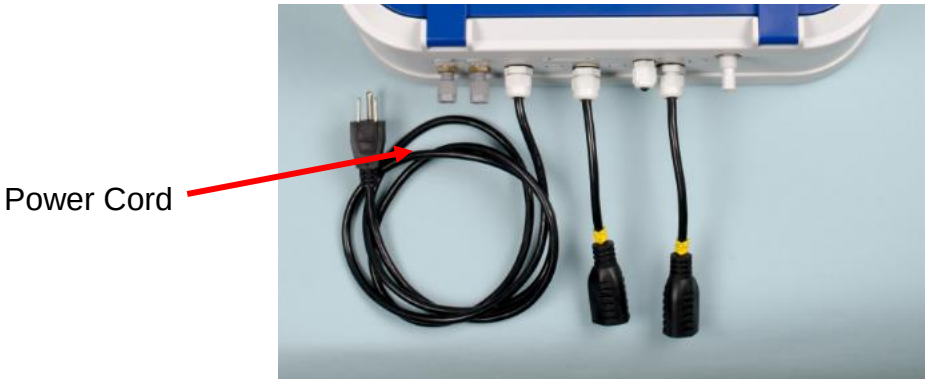


Figure.10 Power Cord

5. Controller Settings and Software Set-up

To ensure that PRIZMA® is able to control most effectively, it must be configured to the specific pool to account for differences in: pool volume, chemical feed rates, and set-points.

5.1. PRIZMA® Setup (Via Panel interface)

PRIZMA® comes with a default setup or special setup per the customer need. Via the panel interface one can setup the measurement interval mode. One can toggle between the 3 tests mode options by pressing the Test Mode (Figure 1) button.

1 – One test per day (a test every 24 hours)

2 – Two tests per day (a test every 12 hours)

3 – Three tests per day (a test every 8 hours)

5.2. Connecting the TDU (Technical Device Unit)

If PRIZMA® is not being set up and controlled using the iPrizma app and Wi-Fi connection, a TDU (Technical Device Unit) is required and is usually kept by the technician. To ensure that PRIZMA® is able to control most effectively, it must be configured to specific pool group to account for differences in: pool volume, chemical feed rates, and set-points. This can be preordered as factory setup or accomplished through the TDU (Technical Device Unit), which is also used to calibrate the controller. Connect the TDU to the 15-pin connector on the bottom of the PRIZMA® and the controller will automatically enter programming mode.

Remove the connector cap before connecting the TDU.

Figure.11 TDU (Technical Device Unit)

NOTE

Do not forget to place the connector cap back in place, after disconnecting the TDU, in order to protect the connector from corrosion.

1. Connect the cable from the TDU to the 15-pin connector on the bottom of the PRIZMA®

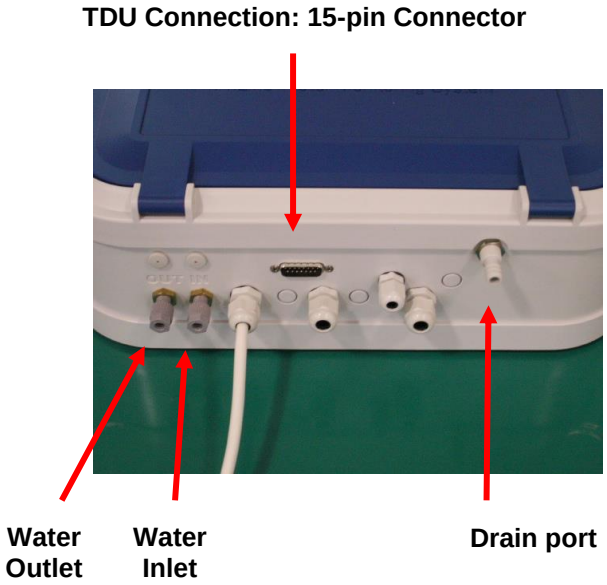


Figure.12 TDU Connection Port

2. Press and hold PWR for 3 seconds until the back-light on the TDU turns ON
3. The software and hardware version of the TDU will appear on the screen

NOTE

In case the TDU SW version is different from the one mentioned in this manual, some menus will be missing from the TDU.

a. Connection Status
   1. If a PRIZMA® controller is properly connected, the screen will display the PRIZMA® ID and any active alarms
   2. If a PRIZMA® controller is not properly connected, the TDU will show "Device Not Found" and will shut down

b. Battery Life -- on the top right corner of the display

5.3. General Manu Navigation

- MEN. Enters the menu
- PWR. Turns TDU ON/OFF
- ESC. Exits Menu and send changes to PRIZMA®
- OK Makes a Selection or Accept Change

- UP/DOWN Arrows Changes Menu or Setting Value
- LEFT/RIGHT Arrows Changes Setting Value

5.4. Main Menu 1: Chlorine Settings

1. Press MENU
2. Use the UP or DOWN Arrows to select "**CL Set-Point**" and Press OK
3. Use the UP or DOWN Arrows to enter the "**CL Set-Point**" and Press OK
4. Use the LEFT or RIGHT Arrows to select YES and Press OK to Save Changes
5. Use the UP or DOWN Arrows to select "**Cl Feed Rate**" and Press OK
6. Use the UP or DOWN Arrows to enter the "**Cl Feed Rate**" and Press OK
7. Use the LEFT or RIGHT Arrows to select YES and Press OK to Save Changes

NOTE

The default value depends on the display mode selection. Refer to section **4.12 "Tech Menu 5: Display Mode Selection" for the default values**

5.5. Main Menu 2: pH Settings

1. Press MENU (if already in menu do not need to press again)
2. Use the UP or DOWN Arrows to select "**pH Set-Point**" and Press "OK"
3. Use the UP or DOWN Arrows to enter the "**pH Set-Point**" and Press "OK"
4. Use the LEFT or RIGHT Arrows to select "YES" and Press "OK" to Save Changes
5. Use the UP or DOWN Arrows to select "**pH Feed Rate**" and Press "OK"
6. Use the UP or DOWN Arrows to enter the "**pH Feed Rate**" and Press "OK"
7. Use the LEFT or RIGHT Arrows to select YES and Press "OK" to Save Changes

NOTE

The default value depends on the display mode selection. Refer to section **4.12 "Tech Menu 5: Display Mode Selection" for the default values**

5.5.1. Cl and pH Feed Rates

The feed rate is the output of the feed system in (**l/h** or **gal/day**) and the controller assumes 12% sodium hypochlorite solution for chlorine and Muriatic Acid / HCL for pH. If using diluted solutions or different feed systems adjust accordingly.

Table 1 provides estimates for starting points. The table can be used as well for conversions for specific feed rates of the dosing system provided by the manufacturer.

Cl Feed Rate (approximate conversion)				
Dosing System	l/h	gal/day	g/day	lb/day
Salt Chlorinators	0.1	0.6	288	0.6
	0.2	1.3	576	1.3
	0.3	1.9	864	1.9
	0.4	2.5	1,152	2.5
	0.5	3.2	1,440	3.2
	0.6	3.8	1,728	3.8
Tablet Feeders	0.7	4.4	2,016	4.4
	0.8	5.1	2,304	5.1
	0.9	5.7	2,592	5.7
	1	6.3	2,880	6.3
Liquid Dosing Pumps	2	12.7	5,760	12.7
	3	19.0	8,640	19.0
	4	25.4	11,520	25.4
	5	31.7	14,400	31.7
	6	38.0	17,280	38.1
	7	44.4	20,160	44.4

Table.1 Cl Feed Rate

NOTE

A Lower feed rate will increase the amount of time the feeder is ON. A higher feed rate will decrease the amount of time the feeder is ON.

- If the pool is consistently below the set-point, lower the feed rate.
- If the pool is consistently above the set-point, raise the feed rate.

NOTE

Chlorine / pH dosing feed rate is 1.1-7 (l/h or gal/day)

5.6. Main Menu 3: Calibration and Pool Volume

NOTE

The PRIZMA® is calibrated in factory and there is no need for site calibration.
Skip the calibration menus.

5.6.1. Calibrating Cl and pH

NOTE

- It takes approximately 2 weeks after installation for the pool's chemical levels to stabilize.
- When calibrating, make sure that water for the manual test is taken from the sample line to the PRIZMA® Controller; not directly from the pool.
- The Cl and pH must be in measurement range (Cl between 0.5 to 5.0ppm and pH between 6.5 to 8.2) in order to calibrate. If the Cl or pH is out of measurement range an alarm of "Out of Range Balance the Pool". Calibration should be performed when the pool operates at or near +/- 25% of the set-points for both Cl and pH.

1. Press "MENU"
2. Use the UP or DOWN Arrows to select "**Cl CALIBRATION**" and Press "OK"
3. Display will show "**CL Value**" and "**Sensor Value**". The "**Cl Value**" is the calibrated value for Cl and the "**Sensor Value**" is the measured Cl level with no calibration.
4. Press "OK"
5. Display will show Wait for Measurement
   a. Measurement cycle will start

b. If there is a problem with the test preventing calibration (i.e. no flow or no cassette), the TDU will display "**Check Alarms**".

6. Perform external calibration test on the water from the PRIZMA® sample line using a digital photometer.
7. Wait for measurement to complete (TEST NOW Light will go out when complete)
8. Use the UP or DOWN Arrows to change the "**CALIBRATE TO**" value to match the manual test and Press "OK"
9. Use the LEFT or RIGHT Arrows to select "YES" and Press "OK" to Save Changes
10. Repeat Steps 2-9 for pH Calibration

5.6.2. Setting Pool Volume

1. Press "MENU" (if already in menu do not need to press again)
2. Use the UP or DOWN Arrows to select "**POOL VOLUME**" and Press "OK"
3. Use the UP or DOWN Arrows to enter the "**POOL VOLUME**" and Press "OK"
4. Use the LEFT or RIGHT Arrows to select "YES" and Press "OK" to Save Changes

5.7. Main Menu 4: Pump Operation and Test Now

5.7.1. Testing Cl and pH Feed System

1. Press "MENU" (if already in menu do not need to press again)
2. Use the UP or DOWN Arrows to select "**Cl Pump opr**" and Press "OK"
3. Use the LEFT Arrow to select "ON"
4. Confirm that the Cl pump or dosing system turns ON
5. Use the RIGHT Arrow to Select "OFF"
6. Confirm that the Cl pump or dosing system turns OFF
7. Press "OK"
8. Repeat Steps 2-8 for "**pH Pump opr**"

5.7.2. Test Now

1. Press "MENU" (if already in menu do not need to press again)
2. Use the UP or DOWN Arrows to select "Test Now" and Press OK
3. Use the LEFT or RIGHT Arrows to select YES and Press OK
4. Measurement cycle will start
5. If there is a problem with the test (i.e. no flow or no cassette), the TDU will display "Check Alarms".

5.8. Menu 5: Additional Pool Information

In order to accurately account for the evaporation rate of the chlorine, additional information about the specific pool is required.

1. Press "MENU" (if already in menu do not need to press again)

2. Use the UP or DOWN Arrows to select "**Stabilized**" and Press "OK"
   a. The stabilized option refers to the use of stabilized chlorine such as di-chlor and tri-chlor and/or using cyanuric acid.
   b. Use the LEFT Arrow to select "Yes" or "No" and Press "OK"
3. Use the UP or DOWN Arrows to select "**Pool Cover**" and Press "OK"
   a. Use the LEFT Arrow to select "Yes" or "No" and Press "OK"
4. Use the UP or DOWN Arrows to select "**Indoor**" and Press "OK"
   a. Use the LEFT Arrow to select "Yes" or "No" and Press "OK"
5. Press "ESC"
6. A message asking if you want to send all changes will appear on the display. Use the LEFT Arrow to Select Yes to Send the Changes to the PRIZMA®.
7. The TDU will return to the main menu display.

5.9. Menu 6:

8. Use the UP or DOWN Arrows to view Test Counter
9. Use the UP or DOWN Arrows select Spa Volume and Press “OK”.
10. Use the UP or DOWN Arrows to select the SPA volume and Press “OK”
11. Use the LEFT Arrow to select “Yes” or “No” and Press “OK”
12. Use the UP or DOWN Arrows select Spa Meas. Int. and Press “OK”
13. Use the UP or DOWN Arrows to select the Spa Meas. Int. and Press “OK”
14. Use the LEFT Arrow to select “Yes” or “No” and Press “OK”

5.10. Technical Menu

This Menu shows additional information about the PRIZMA® that may be useful in troubleshooting problems as well as the TDU set-up.

To enter the Technical Menu:

1. Press “MENU”
2. Press UP and DOWN Arrows TOGETHER

5.11. Technical Menu 1 and Technical Menu 2

These menus show additional information about the connected PRIZMA®. NO changes can be made to these values; it is for information only. Descriptions of each are below:

- Temperature: Temperature inside the PRIZMA® Controller in °C
- Evap Factor: Evaporation Factor PRIZMA® is using (based on settings in Menu 5)
- Light Intens: Light Intensity of the LEDs
- SW ver num: Software Version of the connected PRIZMA®
- HW ver num: Hardware Version of the connected PRIZMA®
- Protocol #: Communication Protocol of the connected PRIZMA®

5.12. Tech Menu 3: TDU Settings

This menu allows for selecting US or Metric units and Language of the TDU

1. Use the UP or DOWN Arrows to Select "**Pool Vol**" and Press "OK"
2. Use the LEFT or RIGHT Arrows to Select between "**m^3**" or "**gal**" and Press "OK"
3. Use the UP or DOWN Arrows to Select "**Feed Rate**" and Press "OK"
4. Use the LEFT or RIGHT Arrows to Select between "**L/hr**" or "**gal/day**" and Press "OK"
5. Use the UP or DOWN Arrows to Select "**Language**" and Press "OK"
6. Use the LEFT or RIGHT Arrows to Select the Language of the TDU and Press "OK"

Pool Volume Configuration			
M^3	**Gallons (appox.)**	**M^3**	**Gallons (appox.)**
1	260	50	13,200
3	790	60	15,800
5	1,320	70	18,500
7	1,840	90	23,700
10	2,640	110	29,000
20	5,250	130	32,300
30	7,900	150	39,600
40	10,500	170	45,000

Table.2 Pool Volume Configuration

5.13. Tech Menu 4: Remote Settings Continued and Testing

This menu is destined for future features.

5.14. Tech Menu 5: Display Mode Selection

This menu allows for selecting display mode and setting the unit address.

1. Use the UP or DOWN Arrows to Select "**Display Conf.**" and Press "OK"
2. Use the LEFT or RIGHT Arrows to Select between the modes "**RGL Mode**" or "**BNK Mode**" or "**MTR Mode**" or "**OX-Hot Mode**" or "**OX-Cold Mode"** and Press "OK" (Table 3)
3. Use the UP or DOWN Arrows to Select "**Address**" Press "OK" and then use the LEFT or RIGHT Arrows to set PRIZMA® address" and Press "OK"

Use the UP or DOWN Arrows to Select "SPA Mode" and Press "OK" to activate the mode.
Press ESC. choose "to send the information to PRIZMA®. Cl Tank Empty LED will blink on/off at a rate of 500msec. (Figure 1, parameter 5). For deactivation of SPA Mode press "OK" and then ESC. the "Cl Tank Empty" will stop blinking.

pH Scale Values	RGL	BNK	MTR	OX Hot Countries	OX Cold Countries
High	> 8.0	>8.0	>8.1	>8.0	>7.7
	7.8 – 8.0	7.5 – 8.0	7.8 – 8.1	7.8 - 8	7.5-7.7
Normal	7.0 – 7.6	7.0 – 7.4	7.0 – 7.6	7 - 7.6	7-7.4
	6.5 – 6.9	6.5 – 6.9	6.5 – 6.9	6.5 - 6.9	6.5-6.9
Low	< 6.5	<6.5	<6.5	< 6.5	<6.5
Empty					
Cl Scale Values	**RGL**	**BNK**	**MTR**	**Hot Countries**	**Cold Countries**
High	> 5.1	> 1.5	0.9 - 1.0	> 2.6	>1.5
	3.1 – 5.0	1.1 – 1.5	0.7 – 0.8	2.1 - 2.6	1.0-1.5
Normal	1.2 – 3.0	0.8 – 1.0	0.5 – 0.6	0.6 - 2.0	0.5-0.9
	0.6 – 1.1	0.5 – 0.7	0.3 – 0.4	0.4 - 0.5	0.3-0.4
Low	< 0.6	< 0.5	< 0.3	< 0.4	<0.3
Empty					
Set Points	**RGL**	**BNK**	**MTR**	**Hot Countries**	**Cold Countries**
pH Set Point	7.0 – 7.6 Default - 7.2	7.0 – 7.8 Default - 7.2	7.0 – 7.6 Default - 7.4	7.0 – 7.6 Default - 7.2	7.0 – 7.4 Default - 7.2
Cl set Point	0.5 – 4ppm Default – 1.5	0.5 – 4ppm Default – 0.9	0.5 – 4ppm Default – 0.8	0.8 – 1.3ppm Default – 1.3	0.5 – 1.0ppm Default – 0.9

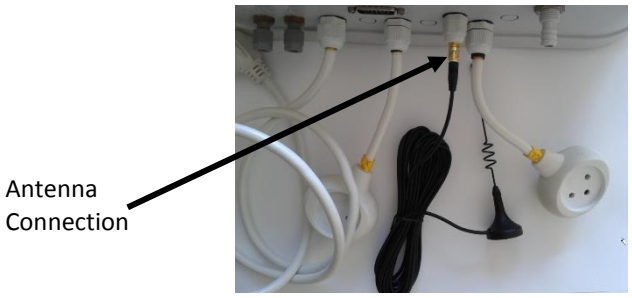
Table.3 Display Mode Setting

6. Controller Settings and Software Set-up Using iPRIZMA® Smartphone App

The PRIZMA® can be set up and controlled using a smartphone app instead of the TDU.
This can be used only with devices carrying the WiFi label:

6.1. WiFi set-up

Connect PRIZMA® WiFi antenna and open cable to enable better communication.



6.2. Downloading the iPRIZMA® smartphone app

1. For iPhone users: Go to the App Store and download iPRIZMA® app.
2. For Android users: Go to the Google Play Store and download iPRIZMA® app.

6.3. First time connection to PRIZMA® using iPRIZMA®

Turn on WiFi in smartphone settings

6.4. Using iPRIZMA® user manual

To continue operating using iPRIZMA® refer to iPRIZMA® Application User Manual.

7. Normal Operation

Under normal operation, the display will show pH and Cl values in a scale of low, normal, and high based on the chosen scale “display Mode”, for example RGL mode has the following scale:

Only 1 LED will be illuminated and will indicate the range of pH or Cl values.

In the example to the left, the pH is between 7.0 and 7.6 and the Cl is between 0.6 to 1.1 ppm.

The TDU will show the numeric values for the pH and Cl test to the nearest tenth.

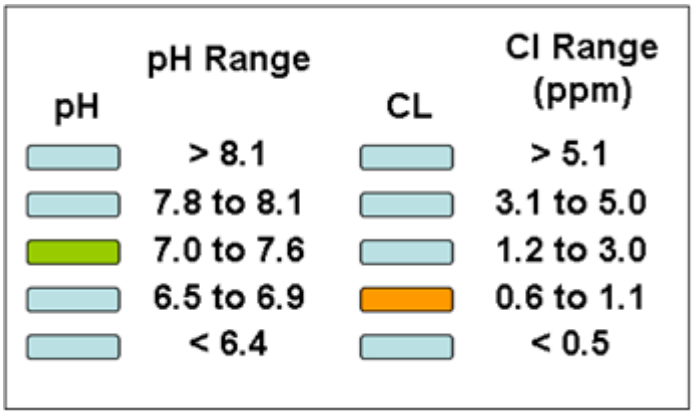


Figure.13 Normal Operation Indication Display

8. Emergency Mode

NOTE

This mode is intended for pools operated with a salt chlorinator and with a rate feed of 0.1ppm.

NOTE

This mode is intended to be operated only when instructed by the pool technician.

NOTE

The emergency mode will keep dosing the pool with low level of chlorine without measurement until the pool technician arrival.

The emergency mode intended use is for cases such as: pool water are not clear, PRIZMA® stopped working (cassette ended) or inline filter is kluged.

Starting the emergency mode operation: press continuously for 4 sec on the test new button (figure 1). This mode will dose the pool with a low feed rate via the salt chlorinator. As long as the PRIZMA® is set to work at this mode the "Test Now" LED will blink on/off at a rate of 500msec. (Figure 1, parameter 4)

The pool technician can see this operation mode via the TDU as emergency mode alarm.

To return to normal operation: press continuously for 4 sec on the test new button. PRIZMA® will return to pool normal operation mode and “Test Now” LED will stop blinking.

9. Test Counter

- Each measurement performed by the PRIZMA® is stored. The counter rests when a new cassette is inserted.
- The normal operation mode warning that a cassette is ending will warn when 25 measurement test pads remains.
- The test counter parameter can be viewed via the TDU as "Test counter".
- Power LED will blink when cassette ends.

NOTE

Do not remove a cassette before ending. As the cassette has no identification, the insertion of a cassette will trigger the counter rest.

10. SPA Mode

NOTE

This mode intended use is for SPA and swimming pool using the same water system (figure 12).

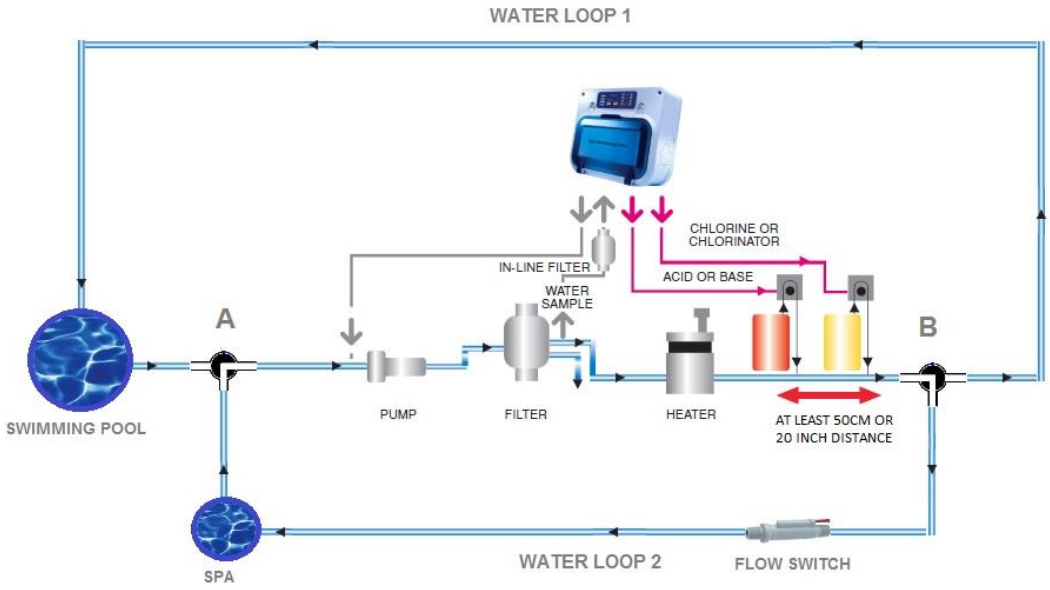


Figure.14 Pool and SPA shared water system.

To enable the SPA mode, connect the flow switch (figure 12) to the “Cl tank empty” in the PRIZMA®. Via the TDU choose “SPA mode on” and use the table (table 4) to set up the pool and SPA parameters.

	Default setup	Select from available range
Pool volume	40 m^3	1-170m^3
SPA pool volume	2m^3	1-10m^3
Pool operation mode	2 measurements per day	1,2 or 3 measurements per day
SPA measurement interval	Every 30min	Every 10-60 min

Table.4 SPA mode parameters

The 3-way valves A and B are contacted to an operator toggle button, switching from monitoring the swimming pool (water loop 1) to monitoring the SPA (water loop 2). This operation is initiated by the pool user whenever they wish to use the SPA.

As long as the PRIZMA® is set to work at this mode the "Cl Tank Empty" LED will blink on/off at a rate of 500msec. (Figure 1, parameter 4)

The pool technician can see this operation mode via the TDU as emergency mode alarm.

On return to pool normal operation mode and “Cl Tank Empty” LED will stop blinking.

11. Alarms and Troubleshooting

No Flow – flow to PRIZMA® is off or too low

1. Check that water is flowing to and from PRIZMA® and correct problem preventing flow to controller

2. Check that internal flow switch is rotating

- Remove obstruction preventing flow switch from moving
- Check wire connection on electronics card
- Replace flow switch if necessary

Cassette End – Testing cassette is empty
Replace Cassette

Door/Cassette – cassette is not properly installed or door open.
Open door, remove cassette then insert cassette back and close door making sure to re-latch both latches for the door.

Chlorine or pH too low/high
Use remote programmer to:

a. Adjust set-point if not properly set

b. Increase total amount of Cl or pH feed by:
- Increasing Pool Volume or
- Decreasing Feed Rate (yes decreasing)

c. Decrease total amount of Cl or pH feed by:
- Decreasing Pool Volume or
- Increasing Feed Rate (yes increasing)

12. Maintenance

12.1. Replacing the Test-strip Cassette

When the test-strip cassette is empty, the “cassette end” alarm will light-up.

1. Elevate the tabs and open cassette door. (Figure 8)
2. Remove the old cassette and discard.
3. Open a new cassette and press into place.
4. Close the door and lower the tabs to hold the door in place.
5. The cassette will automatically load and testing and control will resume automatically

NOTE
The cassette is enveloped in a sealed cover for moisture control. The cassette sealed envelope should be opened prior to installation. An open cassette expires within 4 months

12.2. Filter Maintenance

It is recommended to rinse the filter at the beginning of the season as well each time after the pool filter was treated.

1. Open the filter housing (figure 13 A) counter clockwise while supporting the upper part.
2. Remove the filter (figure 13 B) and rains it well under running water.
3. Insert back the filter and close the housing gently.

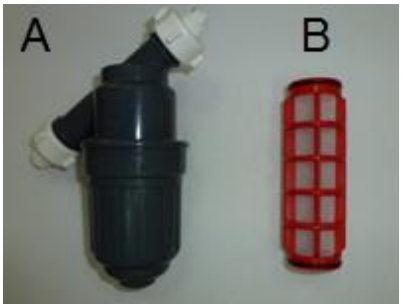


Figure.15 In-line housing and filter

CAUTION

Do not over tighten the filter housing.

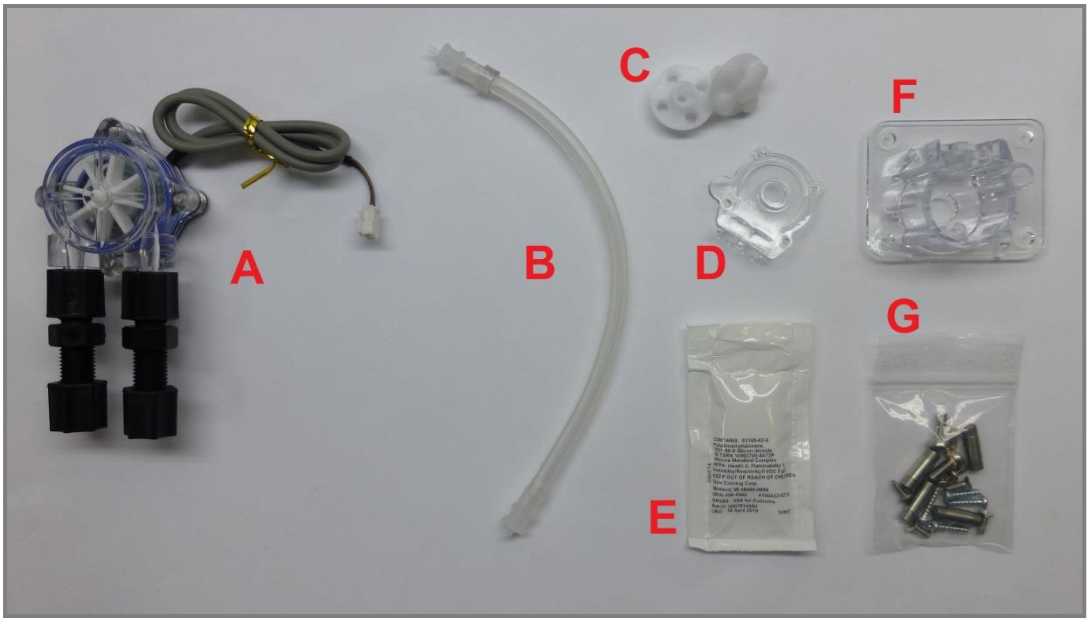
12.3. Prizma® Maintenance Kit

(Catalog number: 971-210-4003) *Biennial maintenance kit for replacement of the sampling water pump and the flow switch*

This Prizma Maintenance Kit provides all the parts that should be **replaced once every two years (pump and flow switch)** in order to maintain the Prizma®'s reliable and continuous operation over time.
Maintenance kits can be purchased from your distributor or from the manufacturer.

Carefully follow the simple steps below to replace the pump and flow switch with the kit.

12.3.1. Parts Included



A Flow switch
B Pump tube
C Rotor base and rotor cover
D Pump housing cover
E Grease
F Pump housing base
G Spare parts, including: Prizma door screws; pump pins; pump housing cover screws; pump housing base screws

Warning:
Turn water off and disconnect power before beginning replacement of any Prizma® component.

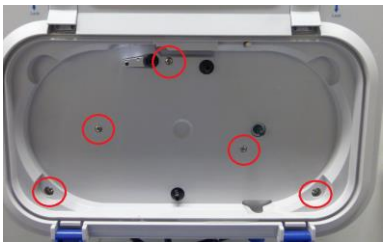
12.3.2. Removing the Prizma® Cover

The pump and flow switch are accessed by removing the Prizma® cover.

1. Gently remove the two screw covers on the top corners of the Prizma®, using a small flat-blade screwdriver.
2. Remove the screws.

3. Unlatch and open the cassette door. Remove cassette.

4. Loosen 5 screws as indicated. (No need to remove completely), and close the cassette door.

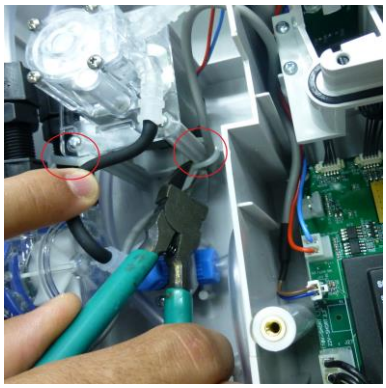


5. Release the Prizma® cover by pulling carefully at the top corners.

12.3.3. Replacing Flow Switch

1. First remove the existing flow switch. Locate and unplug the existing flow switch connector on the electronics card to release flow switch wires. (Marked “INT FLOW SW” on electronics card).

2. Using plyers cut the cable ties holding the flow switch in place (on the plastic posts beneath the pump housing base).

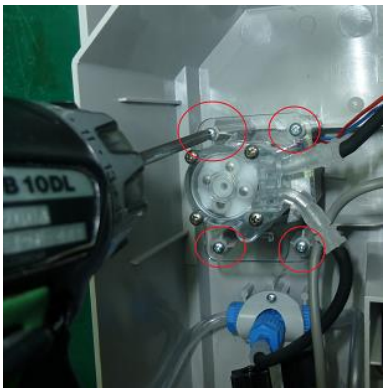


3. Remove the two tubes from the flow switch heads.

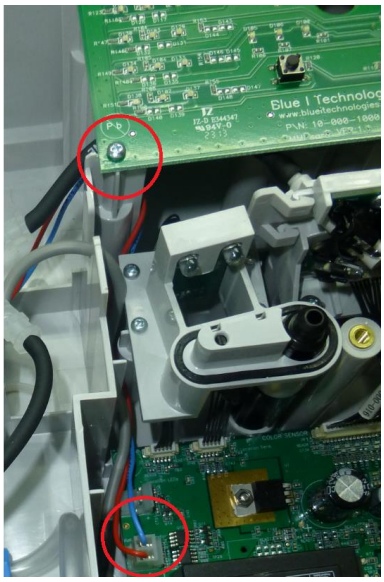
4. **Install the new flow switch** [A] by first securing the two tubes to the flow switch heads.
5. Route the electric cord through the opening to the electronics card and attach the connector (where marked “INT FLOW SW”).
6. Secure the flow switch in place using cable ties to attach one of the black connectors to one of the plastic posts beneath the pump housing base, and the electric cord to another post. (See 2 above).

12.3.4. Replacing Pump Housing

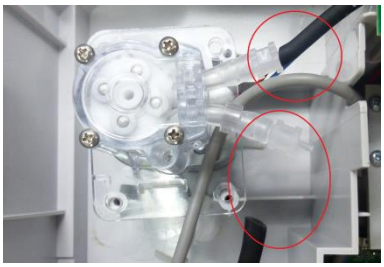
1. First remove the existing pump housing. Remove the four screws of the pump housing base.



2. Locate and unplug the existing connector on the electronics card to release flow switch wires. (Marked “Water Pump motor” on electronics card).
3. Route the wires out through the opening from the electronics card. **Note**: If necessary, loosen the bottom screw of the MMI electronics card and lift the card slightly to make room for the connector to be routed out.

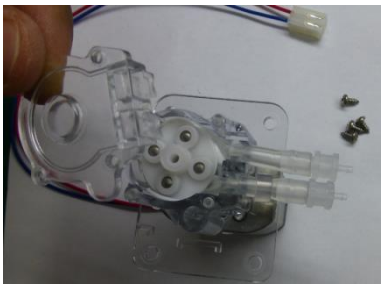


4. Disconnect the two black tubes from the two ends of the pump tube.
5. Lift the pump (with pump motor attached) and remove it to a work surface.



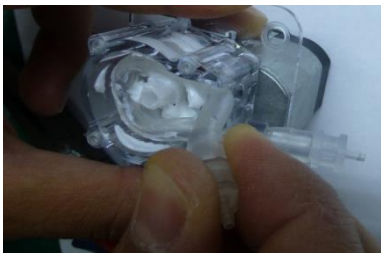
Install the new pump housing:

6. Unscrew and dismantle the existing pump housing cover.



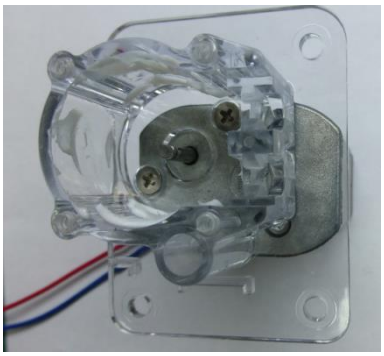
7. With small plyers remove the rotor cover and pump pins.

8. Gently lift and remove the pump tube and then lift out the rotor base.

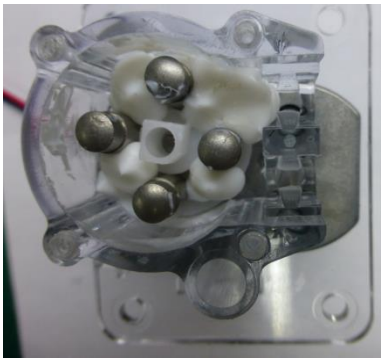


9. Then unscrew the old pump housing base from the motor, to which the new pump housing will be attached.

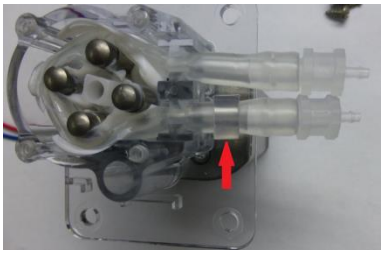
10. Screw the new pump housing [F] onto the motor. (New screws are supplied with the Maintenance Kit.)



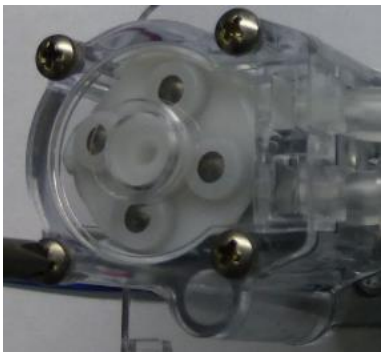
11. Proceed to construct the pump **using only new parts** provided in the Maintenance Kit.
12. Insert the rotor base [C] (knobs side down) by fitting the flat side of the center hole on the flat side of the rotor axle.
13. Insert the four pump pins [G] and secure in the depressions of the rotor base. Then apply grease [E] around the pins (cut a corner of the grease sachet to apply).



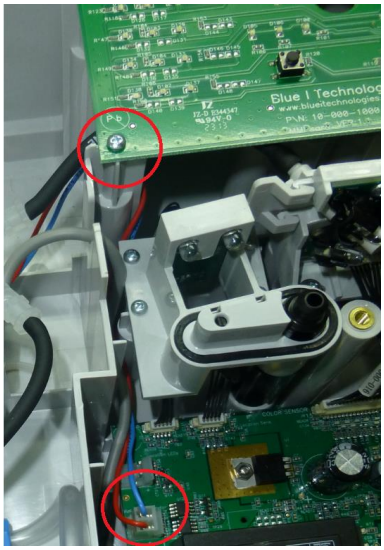
14. Insert the pump tube [B], making sure that the end with the ring is on the bottom.
15. Apply some grease over the pipe, between the pins.



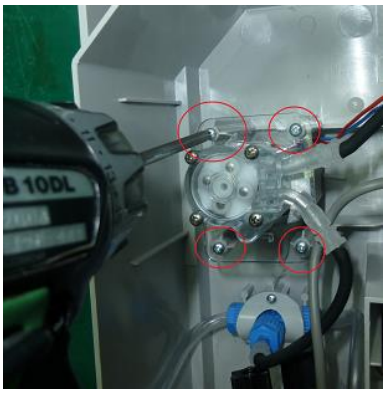
16. Secure the rotor cover [C] over the pins and then screw on the pump housing cover [D].



17. Reconnect the Prizma's two black tubes to the ends of the pump tube.
18. Route the new pump wires through to the electronics card and plug the new connector on the electronics card where marked "Water Pump motor".
    Note: If the bottom screw of the MMI electronics card was loosened to enable access, be sure to secure it back in place.



19. Screw the pump into place.



12.3.5. Replacing the Prizma® Cover

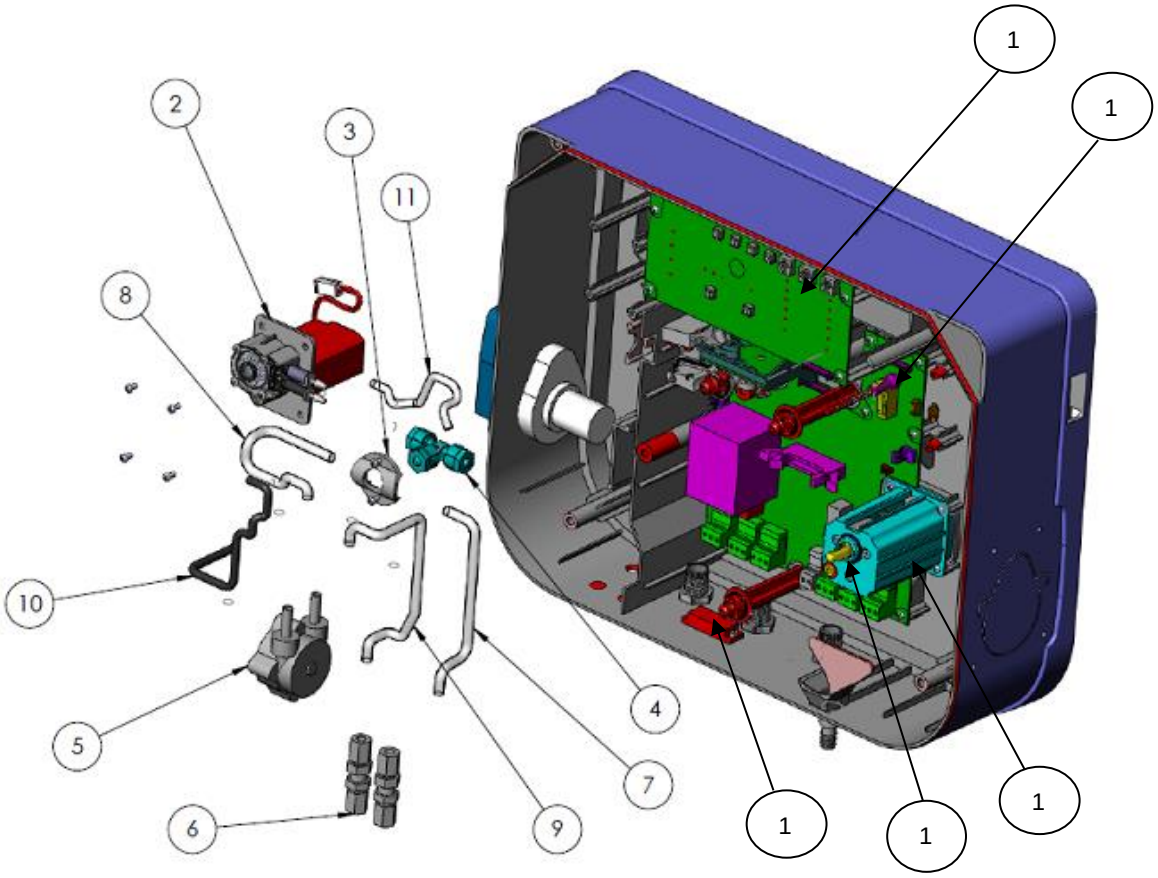
Follow in reverse steps 5-1 in Section 1 above (Removing the Prizma® Cover).

Reconnect the Prizma to its power supply to resume full operation.

Appendix A - PRIZMA® Specifications

GENERAL	
Measurements	Colorimetric based, Free Chlorine & pH
Operation mode	Periodic & configurable 1, 2, and 3 times per day
Measurements range	pH: 6 - 9.1 Cl: 0.2 – 6.3ppm
Measurements accuracy	+/- 5%
Calibration	Automatic, after every measurement
Flow rate	60l/h (recycled into water source)
Test sample	10cc per test
Outside diameter of the fitting	6 mm
Pressure	Inlet 1 Bar max.
Number of tests	125 or 250 (Cl + pH)
COMMUNICATIONS	
Digital	RS-485
Relays or cables	1xpH pump , 1xCl pump , salt chlorinator or tablet chlorinator
Sensors	pH/Cl Tank Empty, External flow available
Alarms	7
TDU (Technical Device Unit)	Via RS-485
Modem	Via RS-485
WiFi	iPRIZMA® smartphone application
ELECTRICAL	
Input	110-120/210-240VAC; 60/50 Hz;
Power Consumption	15 VA max
MECHANICAL	
Dimensions	470mm x 330mm x 130mm 18.5”x12.9”x5.1”
Weight	3.60kg w/out dosing pumps 4.5kg with dosing pumps
ENVIRONMENTAL	
Operating Temperature	2°C to 55°C (35.6°F to 131°F)
Operating Humidity	1%-90% non-condensing
Enclosure type	IPx5
STANDARD COMPLIANCE	
FCC	FCC 47 CRF part 15 Subpart B Class B
Safety	CAN/CSA-C22.2 No. 61010-1 UL Std. No. 61010-1 AS/NZS 3136
CE	EN 61326-1 EN 61010-1:01

Appendix B – PRIZMA® Blow-Apart Diagram



Part No		Description
#2 in the drawing	910-009-0000	Sampling Water pump
#3 in the drawing	910-000-4035	OMEGA T Holder
#4 in the drawing	910-000-4036	T 6 mm (tube Assembly)
#5 in the drawing	870-210-1109	Flow Meter (tube Assembly)
#6 in the drawing	910-000-4039	SERTO 6mm
#7 & 8 & 9 in the drawing	972-000-0090	6 mm Clear tube
#10 &11 in the drawing	970-210-0018	Niofren tube
#12 in the drawing	910-000-1000	Electronic MMI card
#13 in the drawing	910-000-2000	PRIZMA® Main Electronic 1.5 AU(REV1:0)
#14 in the drawing	910-003-0000	Sub Assembly PRIZMA® motor mount
#15 in the drawing	910-000-4025	Motor pin (black)
#16 in the drawing	910-000-4086	PRIZMA® remote connector

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